

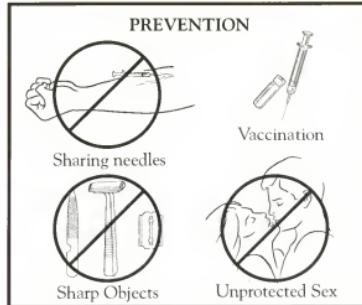
There are newer treatments for hepatitis B carriers. Carriers also have a responsibility to practice safe lifestyle habits that will prevent their passing the virus on to others. This especially includes protected sex.

## Chronic Hepatitis B

A smaller percentage of patients who do not fight off the virus will develop chronic hepatitis B. Like HBV carriers, chronic hepatitis B patients are also able to pass on HBV. However, there is a very important difference with chronic hepatitis B. These patients will also have ongoing hepatitis and liver damage. A few may have an increased risk for developing cancer of the liver. Once again, blood tests show that no antibodies have developed.

The physician usually suspects the condition when abnormal enzyme tests are found on routine blood testing. There are rarely any symptoms in the early stages of chronic hepatitis B. Additional tests, such as ultrasound, are helpful to determine the condition of the liver. A liver biopsy is always performed to determine the degree of inflammation and scarring. Under local anesthesia, a slender needle is inserted through the right lower chest to extract a small piece of liver for examining under a microscope.

Patients with chronic hepatitis B should avoid alcohol because it can cause additional liver damage. Some medicines and drug combinations may cause liver injury, so patients should review all medications they are taking with their physicians. Patients should never take over-the-counter drugs without the physician's approval. Chronic hepatitis B can now be treated with interferon or oral medications that can suppress the virus such as lamivudine or adefovir. Some patients, however, are not good candidates for interferon therapy. A liver disease specialist is often required to determine if the patient should be placed on this therapy. Interferon has been shown to reduce inflammation and liver damage in about 30% of treated patients. A few go on to apparent complete recovery. In some, however, the disease returns when therapy is stopped, and treatment may have to be restarted.



There are bothersome side effects with the drug, and treatment must be evaluated with the physician on an individual basis.

## Liver Transplantation

Liver transplantation is a newer and very successful form of therapy for people with a badly damaged liver. In those patients with chronic hepatitis B, the new liver usually becomes infected with the virus, but most transplant medical centers are dealing with this effectively. There are new drugs for chronic hepatitis B now under investigation. However, at the present time the best defense against HBV is prevention.

## Prevention and Vaccination

There is a safe and effective vaccine to protect or immunize a person against hepatitis B. The vaccine usually offers protection for about 10 years or more. However, it is of no use to those already infected with HBV. Persons who have not been vaccinated and who know they have been exposed to HBV should receive an injection of hepatitis B immune globulin within two weeks of exposure to the virus. This is called a *passive* immunization. It gives immediate short-term protection for 3-6 months. The Hepatitis B vaccine is *active* immunization. Active immunization provides long-

term (sometimes lifelong) protection. Therefore, people who are at risk of coming in contact with the virus, and especially newborn infants and sexually active teenagers, should be immunized. In the U.S., pediatricians now recommend that all children be actively vaccinated.

There are other precautions people should take to protect themselves against hepatitis B. Since the virus is most often spread through sexual contact, it is most important to avoid unprotected sex with those who have or are likely to have the infection. Precautions must be taken to avoid coming in contact with blood or body fluids from an infected individual. For those living in households with infected patients, surfaces which may hold the virus should be cleaned with one part household bleach to 10 parts water. Items such as razors, toothbrushes, IV needles or pierced earrings should never be shared. People should also avoid such practices as tattooing and ear piercing in places where sterile conditions are questionable. Women who are pregnant should be tested for HBV and follow their physicians' advice to protect their unborn children.

## Summary

Hepatitis B is a serious disease that may result in long-term complications. While most people recover, some develop chronic hepatitis. Some people become carriers of HBV without knowing it. For this reason, it is important to prevent spread of the disease by vaccination and by lifestyle practices that avoid contact with infected blood and body fluids. For acute infections, no therapy is available or usually necessary. Researchers are continually learning more about hepatitis, and research into new treatments is ongoing. Chronic hepatitis B patients who are monitored frequently and follow the advice of their physicians have every reason to expect a good quality of life.

# HEPATITIS B

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## The Liver

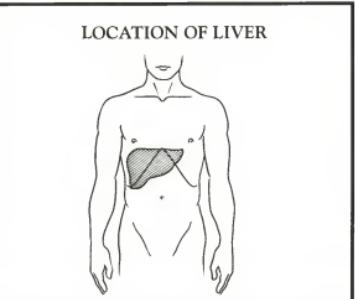
The liver is the largest organ in the body. It is found high in the right upper abdomen, behind the ribs. It is a very complex organ and has many functions. They include:

- Storing energy in the form of sugar (glucose)
- Storing vitamins, iron, and other minerals
- Making proteins, including blood clotting factors, to keep the body healthy and help it grow
- Processing worn out red blood cells
- Making bile which is needed for food digestion
- Metabolizing or breaking down many medications and alcohol
- Killing germs that enter the body through the intestine

The liver shoulders a heavy work load for the body, and almost never complains. It even has a remarkable power to regenerate itself. Still it should not be taken for granted. The liver is subject to illnesses, such as hepatitis B, which may lead to serious liver damage.

## What is Hepatitis?

When cells in the body are injured by such things as chemicals or infection, the area that is



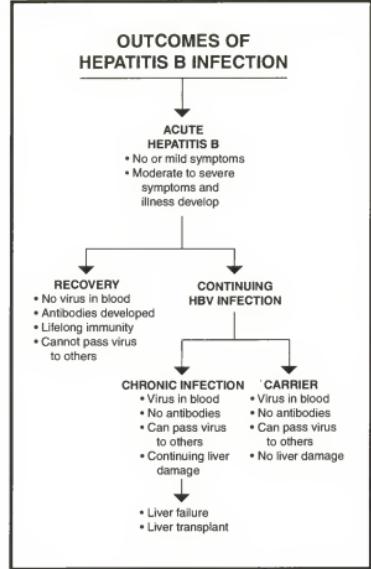
hurt becomes inflamed. Hepatitis is inflammation of the liver, which in turn causes damage to individual liver cells. It is most often caused by viral infection. However, it can also be caused by alcohol, certain drugs, chemicals or poisons, or other diseases.

Hepatitis may be either acute or chronic. In acute hepatitis the inflammation develops quickly, and lasts only a short period of time. The patient usually recovers completely, but it can take up to several months. Occasionally, a person fails to recover fully, and the hepatitis becomes chronic. In other words, it continues at a smoldering pace. Chronic hepatitis can develop over a number of years without the patient ever having acute hepatitis or even feeling sick. As the liver repairs itself, fibrous tissue develops, much like a scar forms after a cut or injury to the skin heals. Advanced scarring of the liver is called cirrhosis. Over time, cirrhosis irreversibly damages the liver, eventually ending in liver failure.

## What is Hepatitis B?

Hepatitis B is caused by the hepatitis B virus (medically abbreviated as HBV). Current estimates are that over 250,000 people in the United States contract HBV each year. It is often spread through sexual contact, accounting for about 50% of the reported cases. It is also spread through contact with blood or body fluids from a person carrying HBV. Some groups have a higher risk of becoming infected with HBV. These include:

- Intravenous drug users
- Health care workers, funeral workers, police
- People in an HBV infected person's household
- People with multiple heterosexual or, especially, homosexual partners
- Residents of nursing homes
- Hemophiliacs and hemodialysis patients
- Prisoners and prison workers
- Travelers to underdeveloped countries
- Certain ethnic groups such as Asians, Hispanics, American Indians, Alaskan Natives, or people from developing countries



In pregnancy, the virus is passed from an infected mother to her child in about 90% of the cases. This usually occurs during delivery. HBV is also carried in breast milk. In about 30% of all cases of hepatitis B, however, it is unknown how the patient contracted the virus. This situation is known as *community acquired disease*.

HBV is much more contagious than the AIDS virus. For example, it can live outside the body on a dry surface for up to 10 days. Once a person gets the virus, it may take from one to six months for the infection and symptoms to develop. One of three things can then happen—most patients develop acute Hepatitis B and recover completely; a small percentage become HBV carriers; and some develop chronic hepatitis B.

## Acute Hepatitis B

Many patients with acute hepatitis B have no symptoms, or the symptoms are mild and often mistaken for flu. Their bodies are able to fight the virus off quickly. Some, however, can become quite sick while their bodies are fighting off the virus. The following are symptoms of acute hepatitis B:

- Loss of appetite, nausea, vomiting, fever
- Aching muscles and sometimes joint pain
- Tenderness in the right upper abdomen
- Jaundice (yellowing of skin and eyes)
- Tea-colored urine; putty-like or white stool

Diagnosis of the disease is made by a blood test. It is called the hepatitis B surface antigen test (HBsAg). A hepatitis B virus level can also be measured. No specific treatment is available or usually necessary for acute hepatitis infection. The physician may recommend supportive measures to help the patient maintain strength and avoid taxing the liver while the body's natural defenses are fighting the virus. Acute hepatitis B patients usually recover completely within six months and develop antibodies that give them a life-long immunity.

Some patients who become infected, however, do not recover completely. Up to 10% of adults with Hepatitis B and up to 50% of infected children under five years of age are not able to completely fight off the virus within six months. This occurs because their bodies are unable to develop antibodies against hepatitis B. Most of these patients become HBV carriers.

## HBV Carriers

HBV carriers recover from the infection completely and feel healthy. They have no ongoing hepatitis or liver damage. However, their blood tests show they still have the virus and have not developed hepatitis B antibodies. Therefore, they can pass on the virus. This is called an HBV carrier. Because carriers do not develop symptoms or feel sick, thousands of people who become carriers of HBV never know it. There may be as many as one million Americans carrying HBV.